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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,482	10/06/2005	Craig Lucas Goodfellow	04630/032001	8462
22511	7590	10/06/2006	EXAMINER	
OSHA LIANG L.L.P. 1221 MCKINNEY STREET SUITE 2800 HOUSTON, TX 77010			TRAN, BINH Q	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

NIT

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/528,482	GOODFELLOW, CRAIG LUCAS	
	Examiner	Art Unit	
	BINH Q. TRAN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 July 2006.
- 2a) ☒ This action is FINAL.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 6-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This office action is in response to the amendment filed July 13, 2006.

#### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

*Claims 1-4, and 6-10 are rejected under 35 U.S.C. 102 (b) as being anticipated by Hoshi et al. (Hoshi) (Patent Number 6,151,890).*

Regarding claims 1, and 8-10, Hoshi discloses a emission reduction apparatus for an engine exhaust (e.g. 2, 3, 4, 5), the apparatus comprising first and second exhaust paths (e.g. 2, 3, 4, 5) and first and second regenerable emission reduction elements (e.g. 7, 8) in the respective

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paths in which the first emission reduction element (e.g. 7) has a greater emission reduction capacity than the second emission reduction element (e.g. 8); and wherein the second emission reduction element has a lower operative temperature formulation than the first emission reduction element (e.g. See Figs. 14-18; col. 31-33, lines 1-67).

Regarding claim 2, Hoshi further discloses that the first and second emission reduction elements have at least one of a heat dependent regeneration regime and a heat dependent emission reduction regime (e.g. See Figs. 14-18; col. 31-33, lines 1-67).

Regarding claim 3, Hoshi further discloses that the emission reduction element comprises a NOx trap (e.g. See Figs. 14-18; col. 31-33, lines 1-67).

Regarding claim 4, Hoshi further discloses that the NOx trap includes a particulate filter (e.g. See Figs. 14-18; col. 31-33, lines 1-67).

Regarding claim 6, Hoshi further discloses a controller for controlling operation of the apparatus (e.g. See Figs. 14-18; col. 31-33, lines 1-67).

Regarding claim 7, Hoshi further discloses an exhaust path (e.g. See Figs. 14-18; col. 31-33, lines 1-67).

### ***Response to Arguments***

Applicant's arguments filed July 13, 2006 have been fully considered but they are not completely persuasive. Claims 1-4, and 6-10 are pending.

Applicants have argued that Hoshi does not teach or suggest Applicants's claimed invention. More specifically, Applicants assert that the reference to Hoshi fails to disclose that *the second emission reduction element has a lower operative temperature formulation than the first*

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*emission reduction element.* The examiner respectfully disagrees, in the Embodiment 9, and columns 31-34, lines 1-67, Hoshi has clearly disclosed that “ Then, when the internal combustion engine 1 is started, the above-described first and second three way catalysts 7 and 8 receive the heat of the exhaust gas discharged from the internal combustion engine 1 with their temperature being elevated. However, since the heat capacity of the second three way catalyst 8 is smaller than the heat capacity of the first three way catalyst 7, the temperature elevation rate of the second three way catalyst 8 is higher than the temperature elevation rate of the first three way catalyst 7 and the temperature of the first three way catalyst 7 is elevated to the predetermined temperature earlier than that of the first three way catalyst 8 to release the adsorbed unburnt hydrocarbon (HC). A relationship between the heat capacity of the three way catalyst and the desorption timing will now be described with reference to FIG. 17. .... Also, it is possible to differentiate a capacity of the first three way catalyst 7 from a capacity of the second three way catalyst 8. For example, in the case where the capacity of the first three way catalyst 7 is greater than the capacity of the second three way catalyst 8, the heat capacity of the first three way catalyst 7 is greater than the heat capacity of the second three way catalyst 8. Furthermore, it is possible to form the carrier of the first three way catalyst 7 and the carrier of the second three way catalyst 8 of different material. For example, in the case where the carrier of the first three way catalyst 7 is made of metal and the carrier of the second three way catalyst 8 is made of ceramic, since the heat capacity of the metal is greater than the capacity of the ceramic, the heat capacity of the first three way catalyst 7 is greater than the heat capacity of the second three way catalyst 8. Also, it is possible to differentiate a thickness of an outer sleeve constituting the first three way catalyst 7

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*from a thickness of an outer sleeve constituting the second three way catalyst 8. For example, in the case where the thickness of the outer sleeve of the first three way catalyst 7 is greater than the thickness of the outer sleeve of the second three way catalyst 8, the heat capacity of the first three way catalyst 7 is greater than the heat capacity of the second three way catalyst 8". It is clearly that Hoshi has show a system having a first emission reduction element has a greater emission reduction capacity than the second emission reduction element; and wherein the second emission reduction element has a lower operative temperature formulation than the first emission reduction element.*

Applicant's amendment (Claims 1-4, and 6-10) necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL See MPEP, 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

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*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT  
September 29, 2006



Binh Q. Tran  
Patent Examiner  
Art Unit 3748